

CLAIMS

1. A fine hollow powder comprising a titanium oxide shell.
2. A fine hollow powder according to Claim 1, wherein the titanium oxide shell has an outer diameter (D) of 0.1 - 5,000 μm and a thickness (T) of 1 nm - 100 μm .
3. A fine hollow powder according to Claim 1, wherein the titanium oxide shell has a ratio of outer diameter (D) to thickness (T), D/T, of 50 - 5,000.
4. A process for producing a fine hollow powder of the Claim 1, which comprises a step of spray drying an exfoliated titania sol.
5. A process according to Claim 4, wherein the exfoliated titania sol has a viscosity of 5 - 10,000 cP.
6. A process according to Claim 4, wherein the exfoliated titania sol comprises a dispersion of delaminated particles represented by the following composition formula:

$$\text{Ti}_{2-x/3} \text{O}_4^{(4x/3)-}$$
, where x is 0.57 - 1.0.
7. An exfoliated titania sol, which comprises a dispersion of delaminated particles represented by the following composition formula:

$$\text{Ti}_{2-x/3} \text{O}_4^{(4x/3)-}$$
, where x is 0.57 - 1.0.
8. A process according to Claim 4, wherein the exfoliated titania sol comprises a dispersion of delaminated particles having a thickness of 0.5 - 1 nm, a

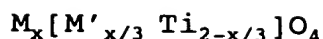
width of 0.1 - 30 μm and a length of 0.1 - 30 μm .

9. A process according to Claim 4, which further comprises a step of heat treating at a temperature of 100° - 800°C after the step of spray drying.

10. A process according to Claim 4, wherein the exfoliated titania sol is prepared by a step of producing an alkali metal titanate by mixing an alkali metal oxide or a compound decomposable to an alkali metal oxide by heating with titanium oxide or a compound capable of producing titanium oxide by heating, followed by heating; a step of producing a layered titanate acid compound by treating the alkali metal titanate with an aqueous acid solution; and a step of producing an exfoliated titania sol by dispersing the layered titanate acid compound in a liquid medium in the presence of a basic compound.

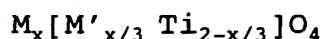
11. A process according to Claim 10, wherein the step of producing the alkali metal titanate comprises mixing alkali metal oxides represented by M_2O and $\text{M}'_2\text{O}$, where M and M' are mutually different kinds of alkali metals, or compounds decomposable to M_2O and $\text{M}'_2\text{O}$ by heating with titanium dioxide or a compound capable of producing titanium dioxide by heating in a molar ratio of M/M'/Ti of 3/1/5 - 3/1/11, followed by heating at a temperature of 500° - 1,100°C.

12. A process according to Claim 10, wherein the alkali metal titanate is a mixed alkali metal titanate in a layer structure of orthorhombic crystal, represented by the following composition formula:



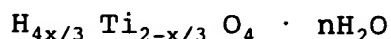
, where M and M' are mutually different kinds of alkali metals and x is 0.50 - 1.0.

13. A mixed alkali metal titanate in an orthorhombic layer structure represented by the following composition formula:



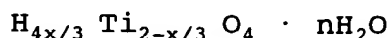
, where M and M' are mutually different kinds of alkali metals and x is 0.50 - 1.0.

14. A process according to Claim 10, wherein the layered titanic acid compound is a compound in an orthorhombic layer structure represented by the following composition formula:



, where x is 0.50 - 1.0 and n is 0 - 2.

15. A layered titanic acid compound in an orthorhombic layer structure represented by the following composition formula:



, where x is 0.50 - 1.0 and n is 0 - 2.

16. A thin flaky titanium oxide powder, obtained by pulverization of fine hollow powder of the Claim 1.

17. A thin flaky titanium oxide powder according to Claim 16, wherein the thin flaky titanium oxide powder has a thickness of 1 - 100 nm, a width of 0.1 - 500 μ m and a length of 0.1 - 500 μ m.

18. A process for producing a thin flaky titanium oxide powder, which comprises a step of pulverizing fine

hollow powder of the Claim 1.

19. A process according to Claim 18, which further comprises a step of heat treating at a temperature of 100° - 800°C before and/or after the step of pulverization.

20. A cosmetic which comprises a fine hollow powder of the Claim 1 ~~or a thin flaky titanium oxide powder of the Claim 16.~~

21. A seed particle for flow measurement, which comprises a fine hollow powder of the Claim 1. ✓

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